Tasaot 990507

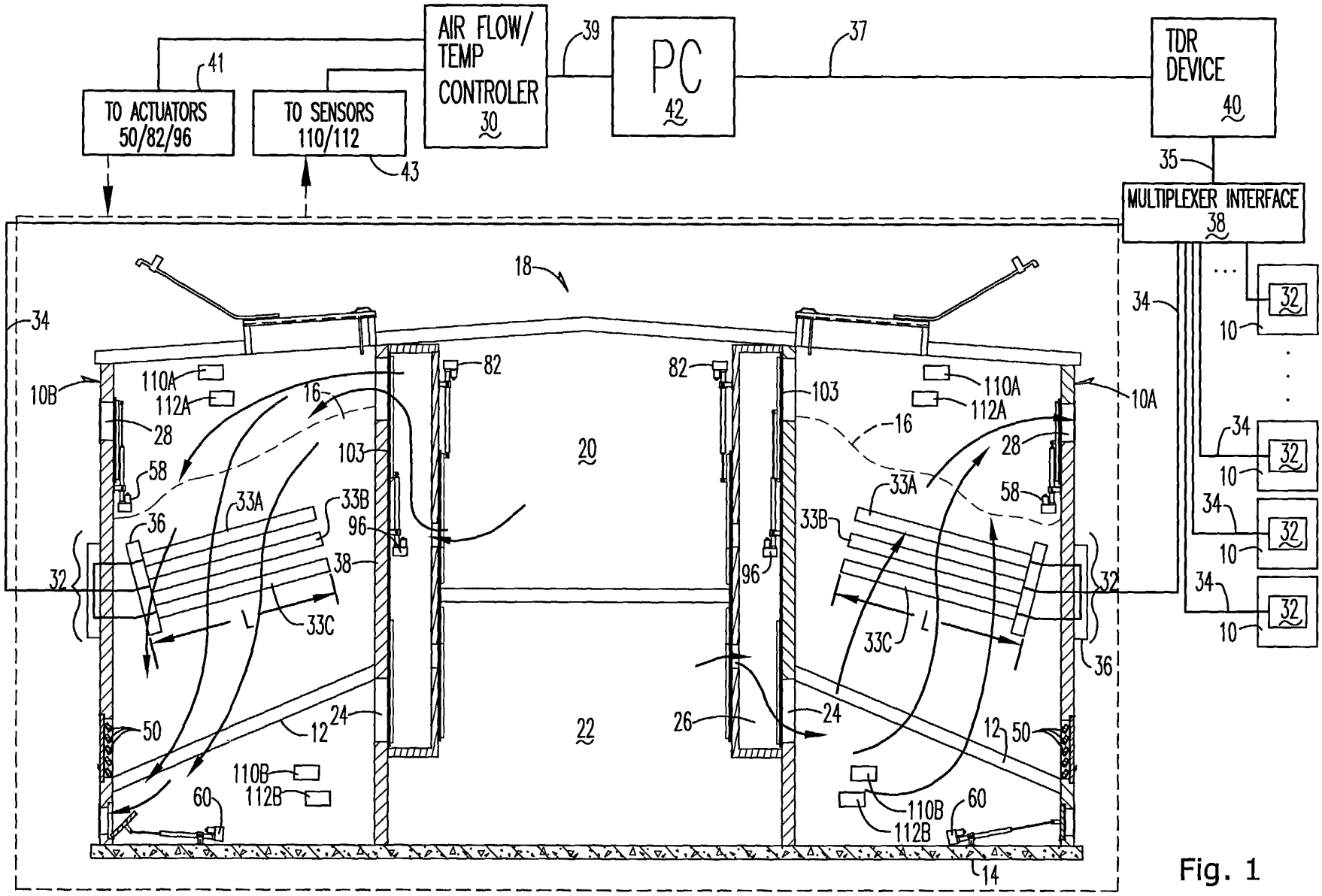

Fig. 1

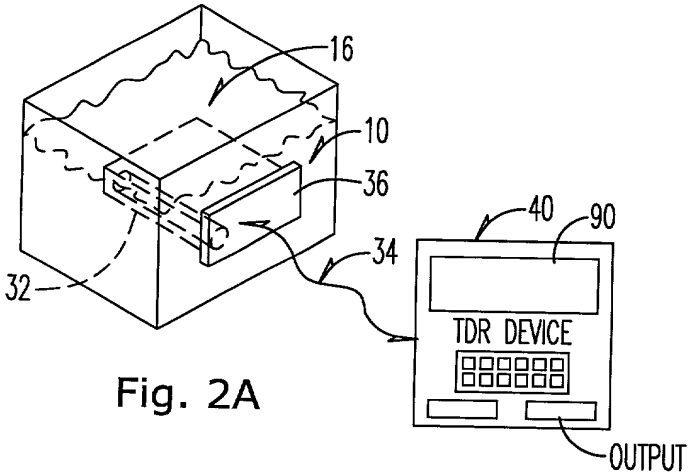

Fig. 2A

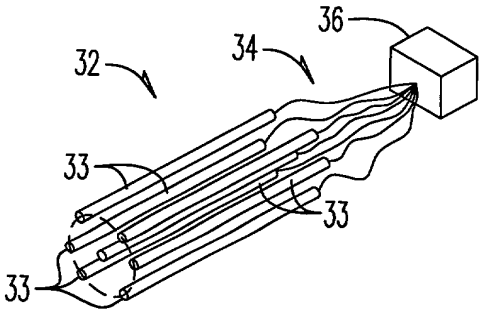

Fig. 2D

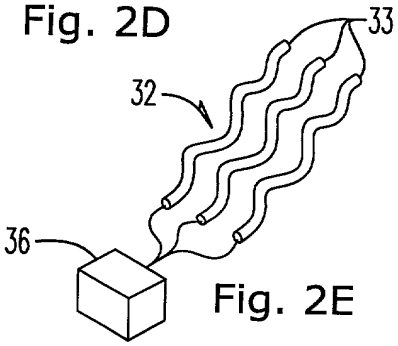

Fig. 2E

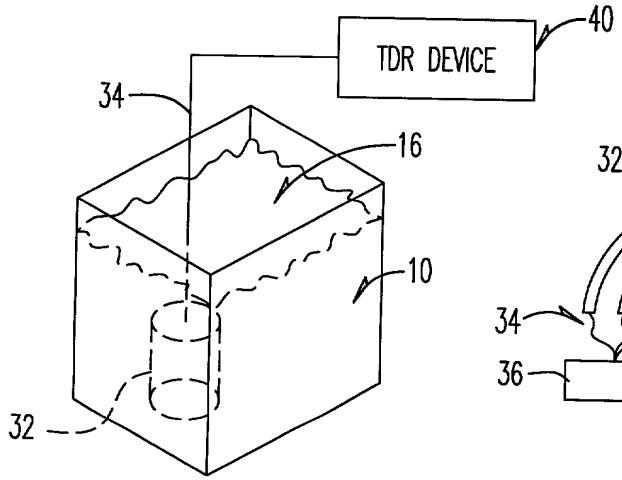

Fig. 2B

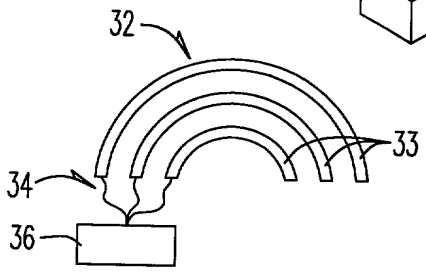

Fig. 2F

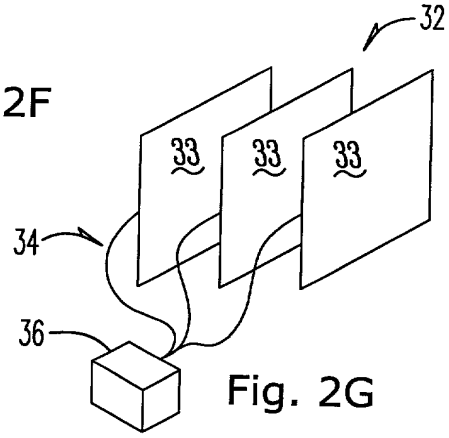

Fig. 2G

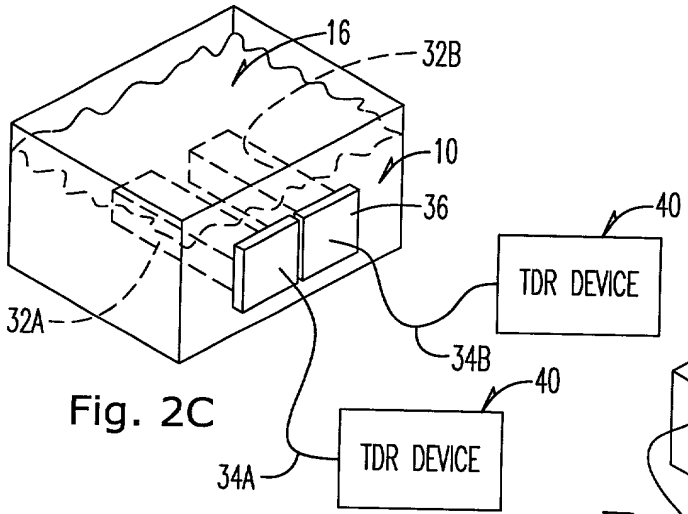

Fig. 2C

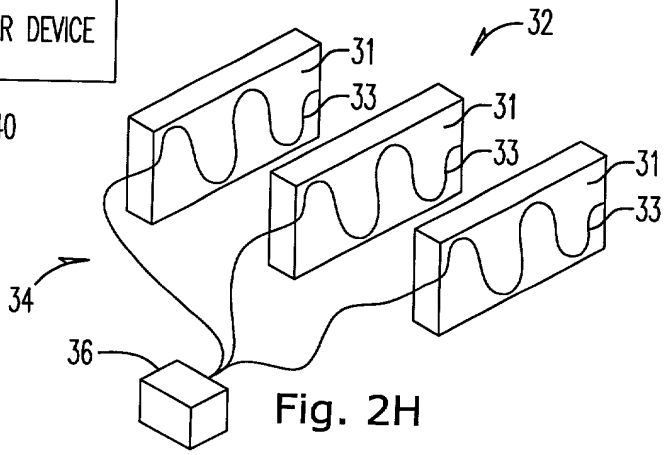

Fig. 2H

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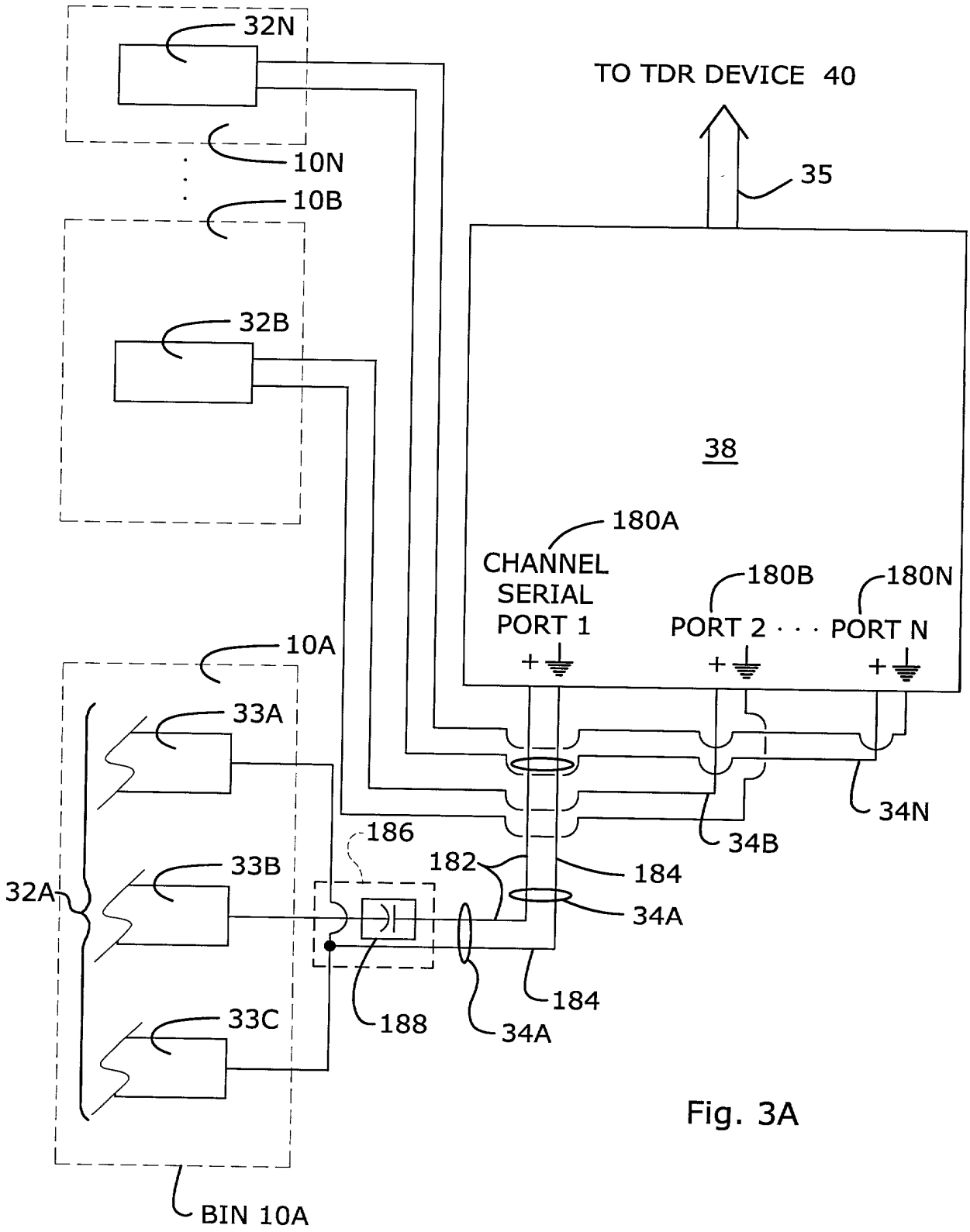


Fig. 3A

[Interface between probes and TDR device]

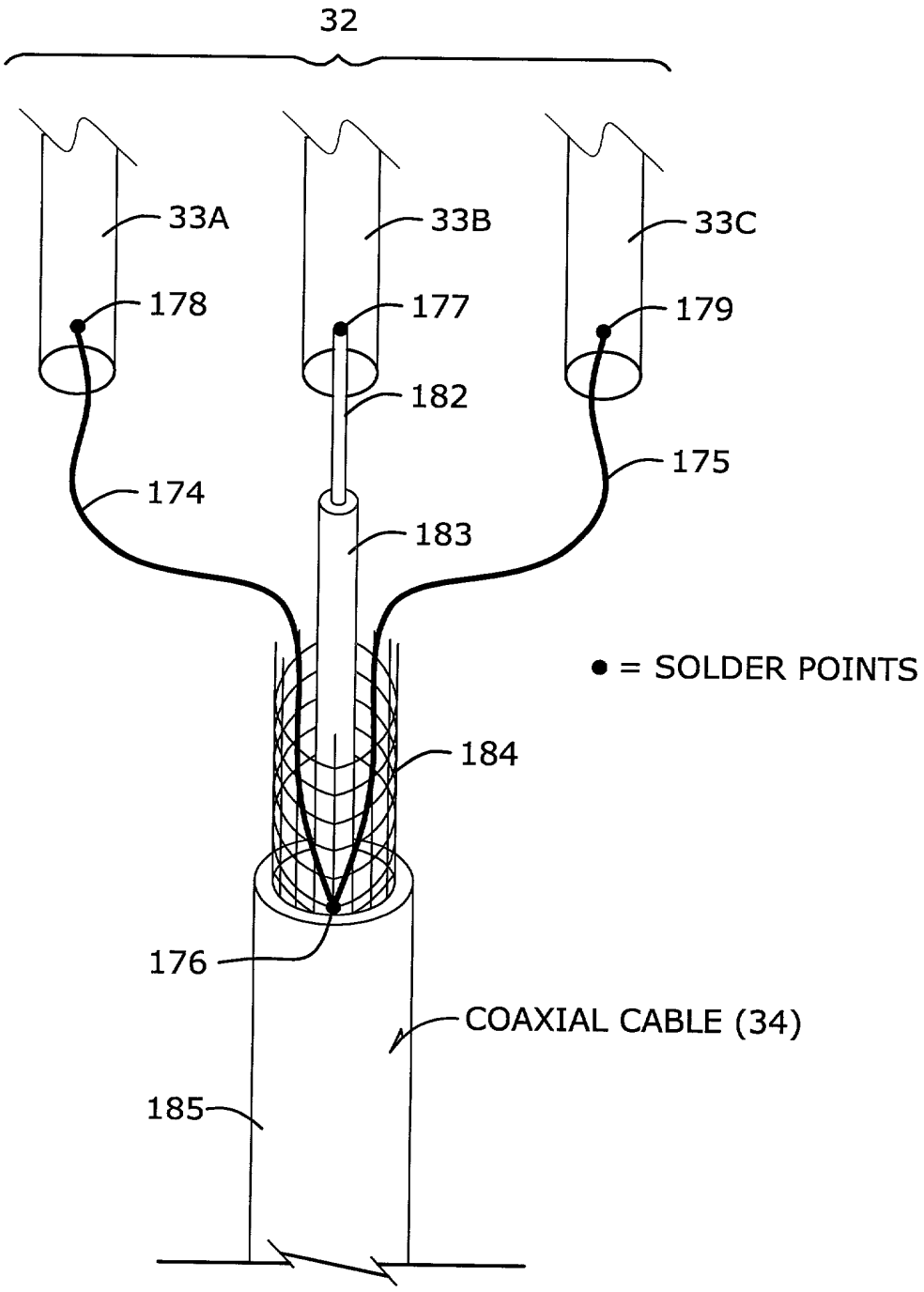

32
33A
33B
33C
178
177
179
182
174
175
183
● = SOLDER POINTS
184
176
COAXIAL CABLE (34)
185

Fig. 3B

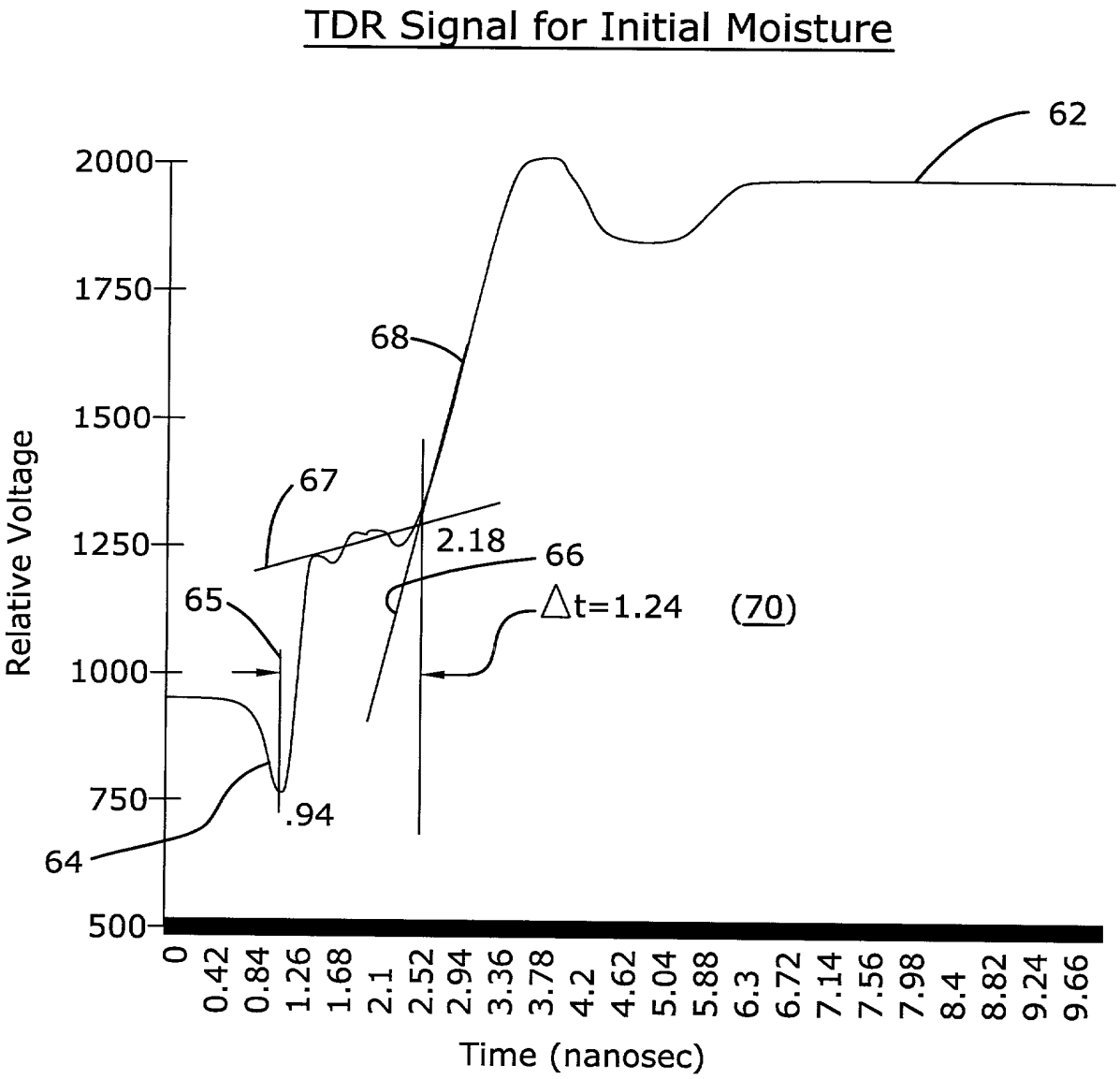

TDR Signal for Initial Moisture
62
2000
1750
1500
1250
1000
750
500
Relative Voltage
68
67
2.18
66
65
Δt=1.24
(70)
.94
64
0
0.42
0.84
1.26
1.68
2.1
2.52
2.94
3.36
3.78
4.2
4.62
5.04
5.88
6.3
6.72
7.14
7.56
7.98
8.4
8.82
9.24
9.66
Time (nanosec)

Fig. 4A

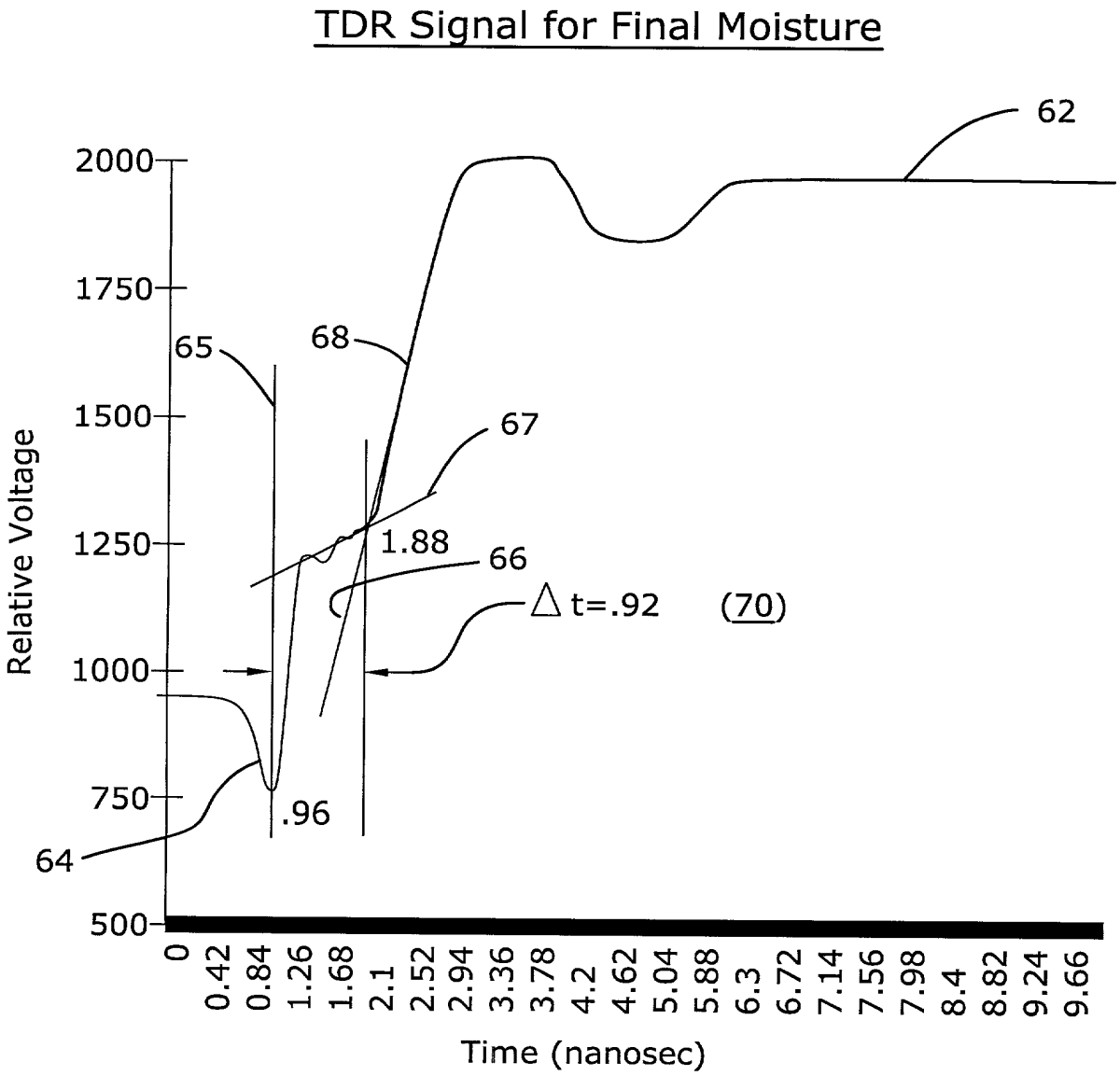

TDR Signal for Final Moisture
62
2000
1750
1500
1250
1000
750
500
65
68
67
1.88
66
t=.92
(70)
.96
64
Relative Voltage
0
0.42
0.84
1.26
1.68
2.1
2.52
2.94
3.36
3.78
4.2
4.62
5.04
5.88
6.3
6.72
7.14
7.56
7.98
8.4
8.82
9.24
9.66
Time (nanosec)

Fig. 4B

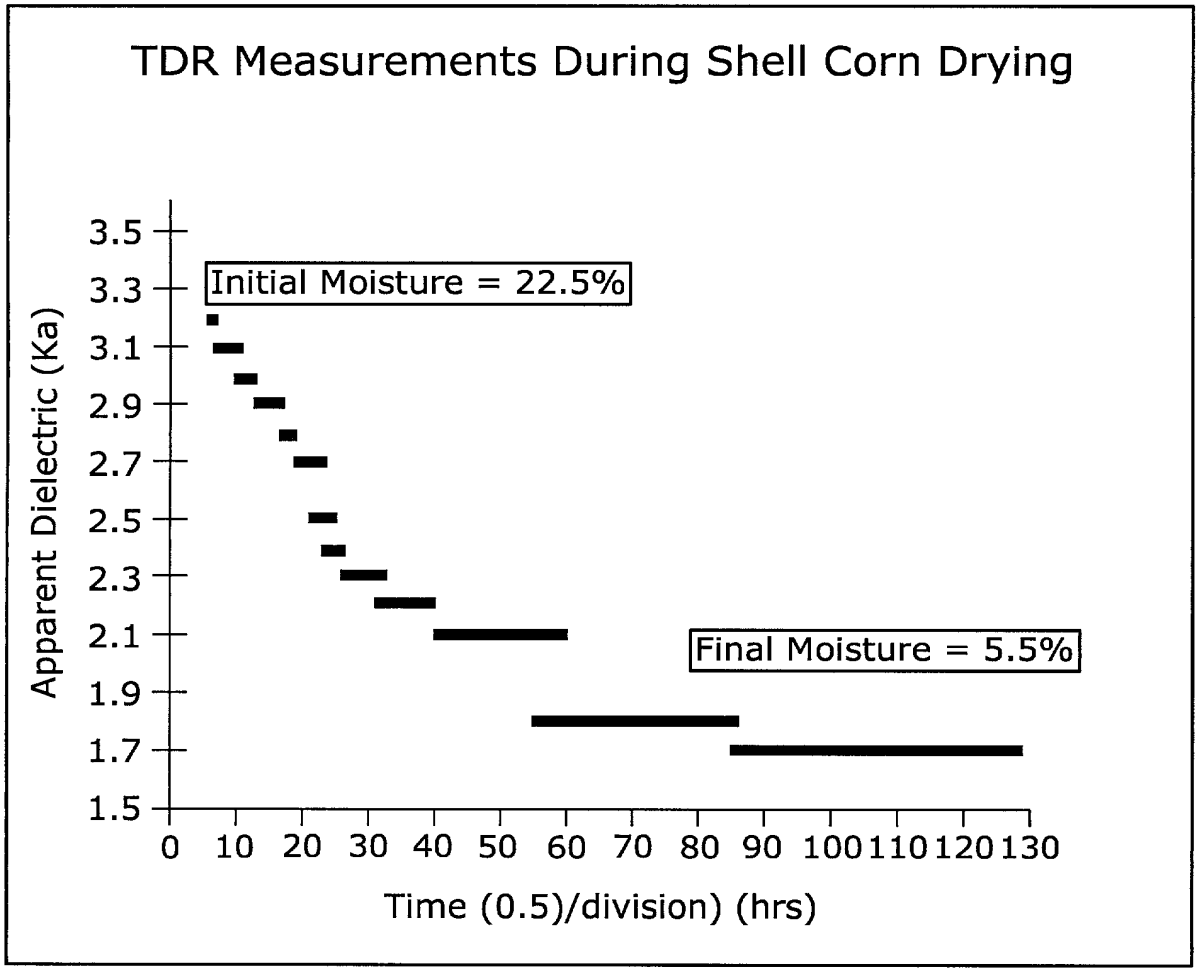

TDR Measurements During Shell Corn Drying
Apparent Dielectric (Ka)
3.5
3.3
3.1
2.9
2.7
2.5
2.3
2.1
1.9
1.7
1.5
Initial Moisture = 22.5%
Final Moisture = 5.5%
0 10 20 30 40 50 60 70 80 90 100 110 120 130
Time (0.5)/division) (hrs)

Fig. 5

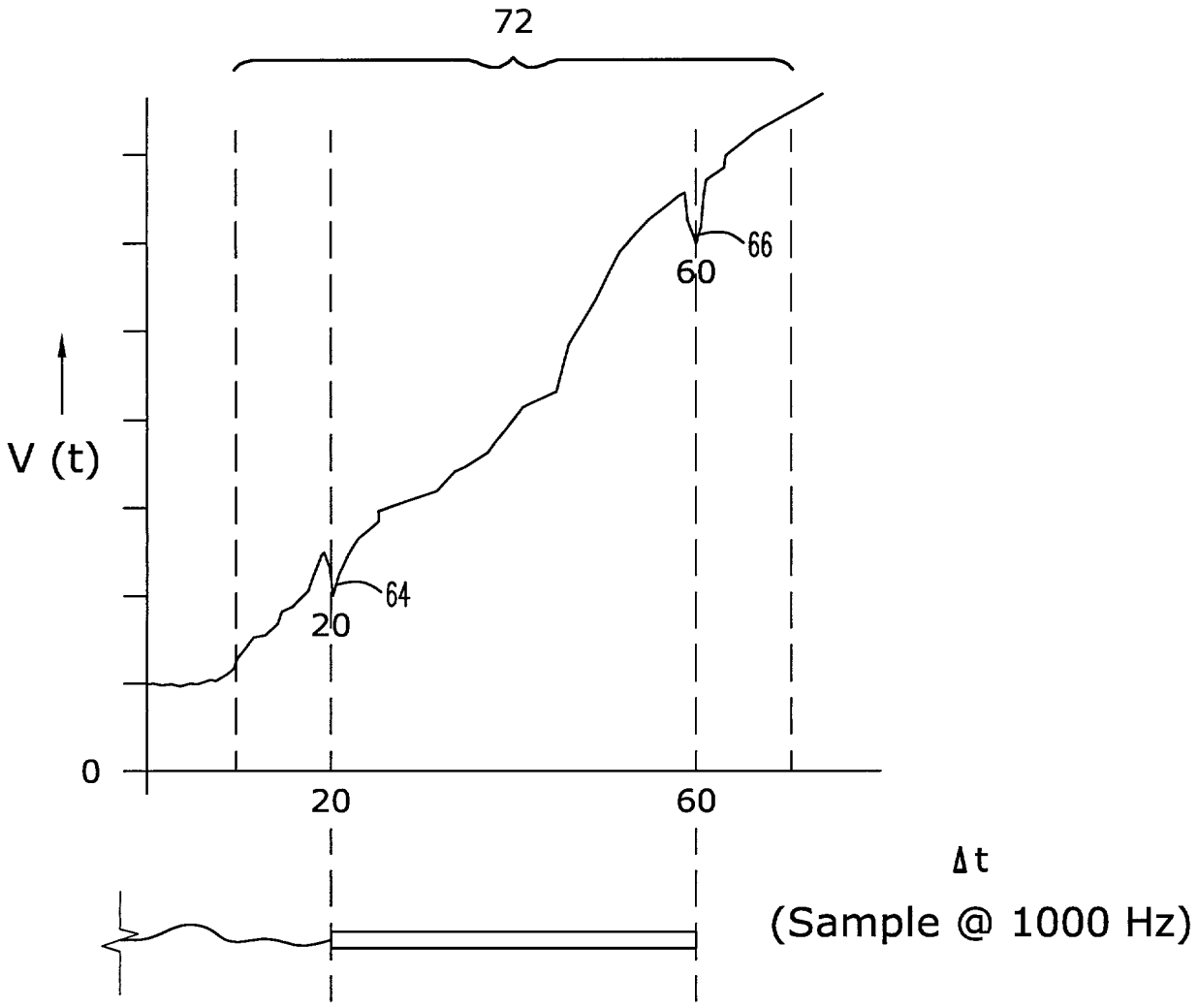


Fig.6

				Wave	**guide**	**MUX**			**Zero**				
#	Tag	%M	Ka	Ft	Typ	Ch	G	Tab	T ns	Date	Time	P	Error
1	Abc	22.0	3.70	8	xxx	7	0	STD	17.2	15-Apr	15:30:27	N	
2	Abc	21.8	3.60	8	Xxx	7	0	STD	17.3	15-Apr	16:00:27	1	
3	Abc	21.6	3.50	8	Xxx	7	0	STD	17.3	15-Apr	16:30:27	1	
4	Abc	21.4	3.40	8	Xxx	7	0	STD	17.3	15-Apr	17:00:27	1	
5	Abc			8	xxx	7	0	STD	17.3	15-Apr	17:30:27	1	
.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.	.
74	Abc	0.1	2.00	8	xxx	7	0	STD	17.2	17-Apr	4:00:27	N	
75	Abc	0.1	2.00	8	Xxx	7	0	STD	17.3	17-Apr	4:30:27	1	
76	Abc	0.1	2.00	8	Xxx	7	0	STD	17.3	17-Apr	5:00:27	1	
77	Abc	0.0	2.00	8	Xxx	7	0	STD	17.3	17-Apr	5:30:27	1	
78	Abc	0.0	2.00	8	xxx	7	0	STD	17.3	17-Apr	6:30:27	1	
.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.	.	.	.	.	.
126	Abc	0.00	1.90	8	Xxx	7	0	STD	17.3	18-Apr	6:00:27	1	
127	Abc	0.00	1.90	8	Xxx	7	0	STD	17.3	18-Apr	6:30:28	1	
128	Abc	0.00	1.90	8	Xxx	7	0	STD	17.3	18-Apr	7:00:28	1	
129	Abc	0.00	1.90	8	Xxx	7	0	STD	17.3	18-Apr	7:30:27	1	
130	Abc	0.00	1.90	8	Xxx	7	0	STD	17.3	18-Apr	8:00:28	1	

FIGURE 7

TDS20T 990h0B0T

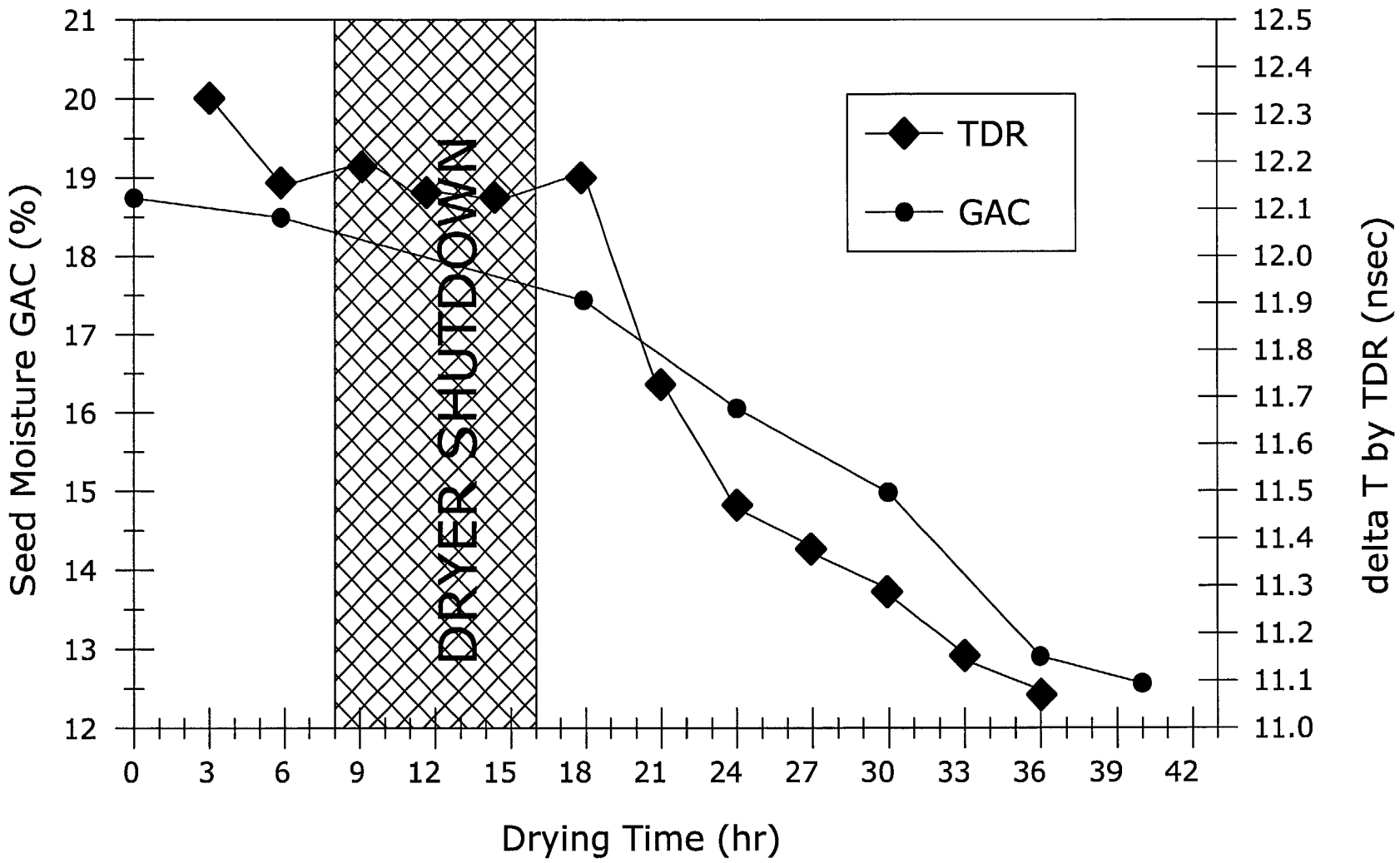


Fig. 8

Moisture = ((4.3096)(Δt)) -29.974

R^2 = 0.8847

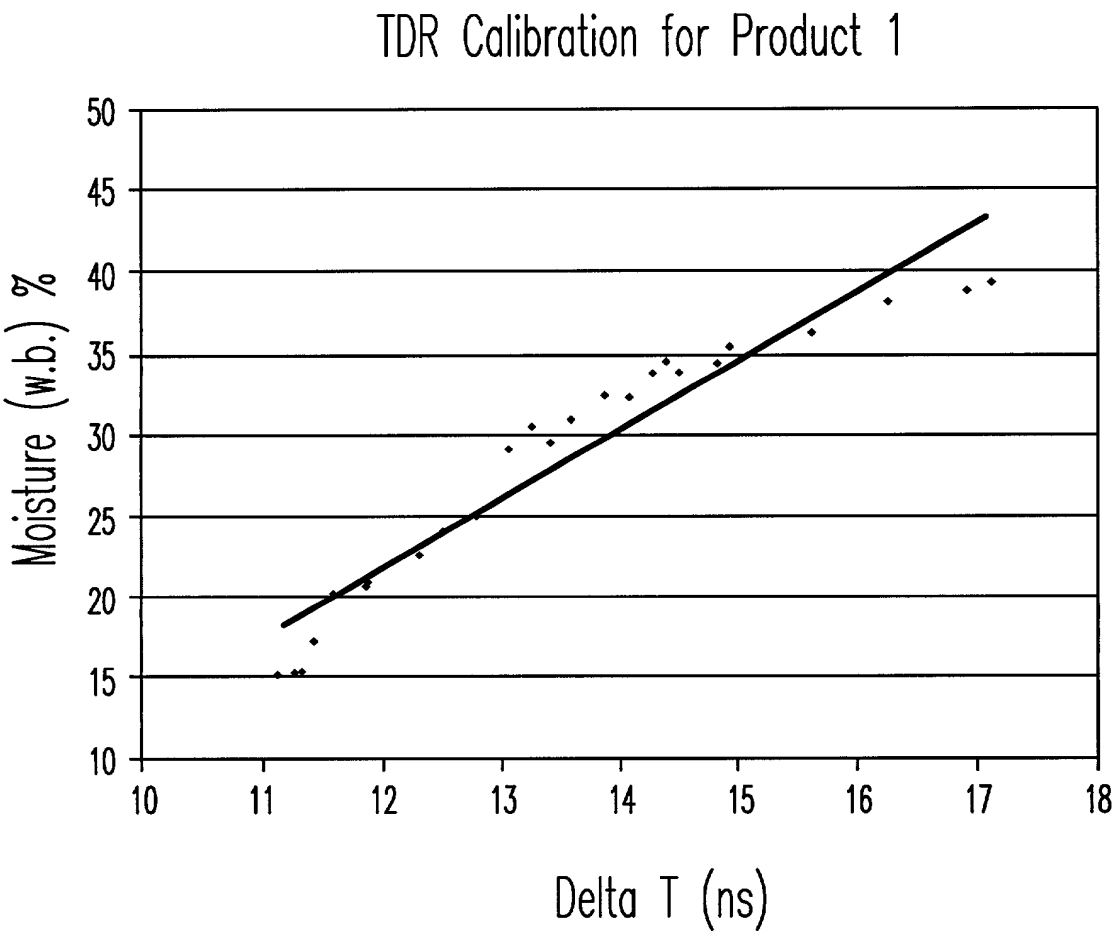
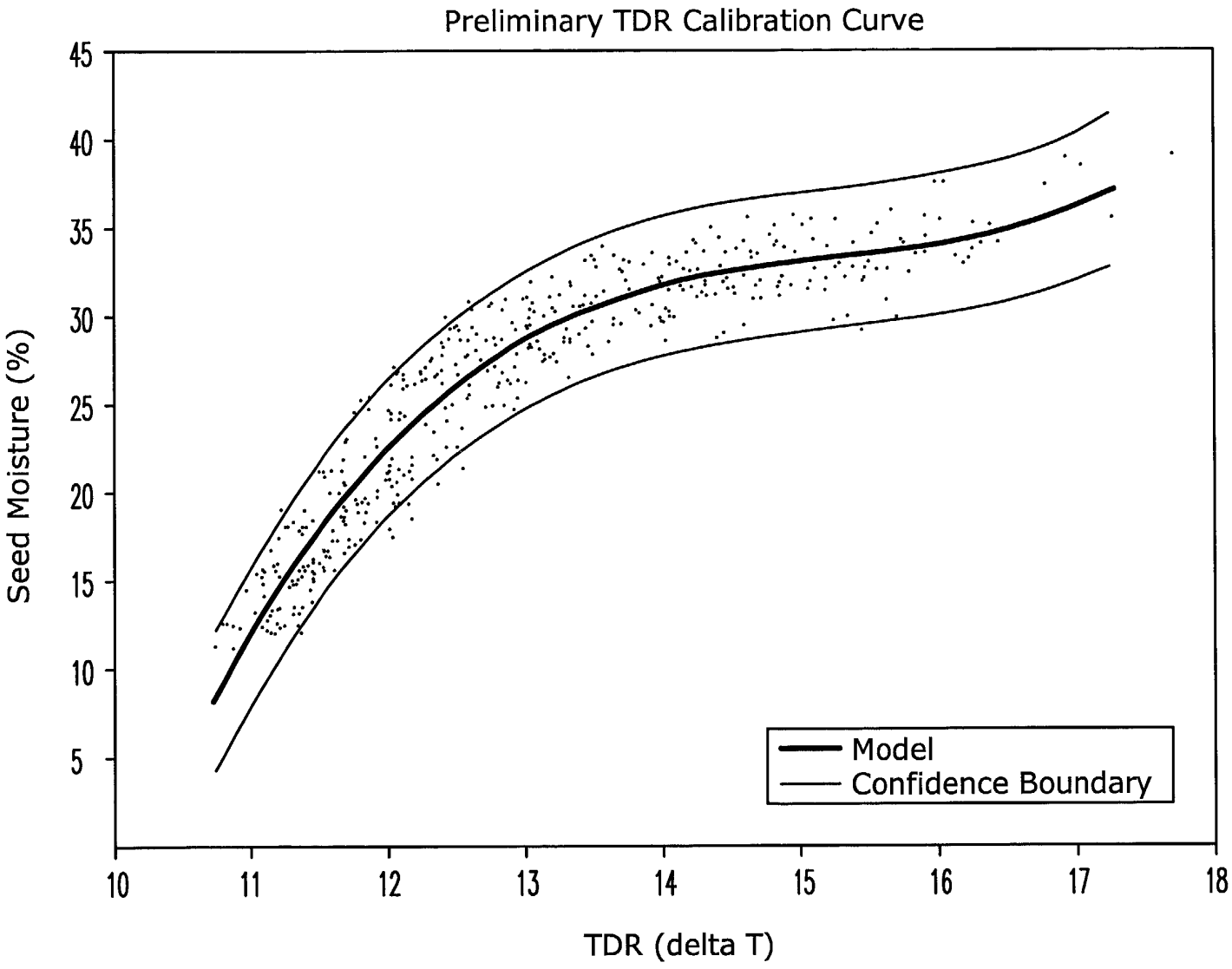


Fig.9A



Seed Moisture = -811+165x-10.8x^2+0.24x^3 (x=delta-t)

Fig.9B

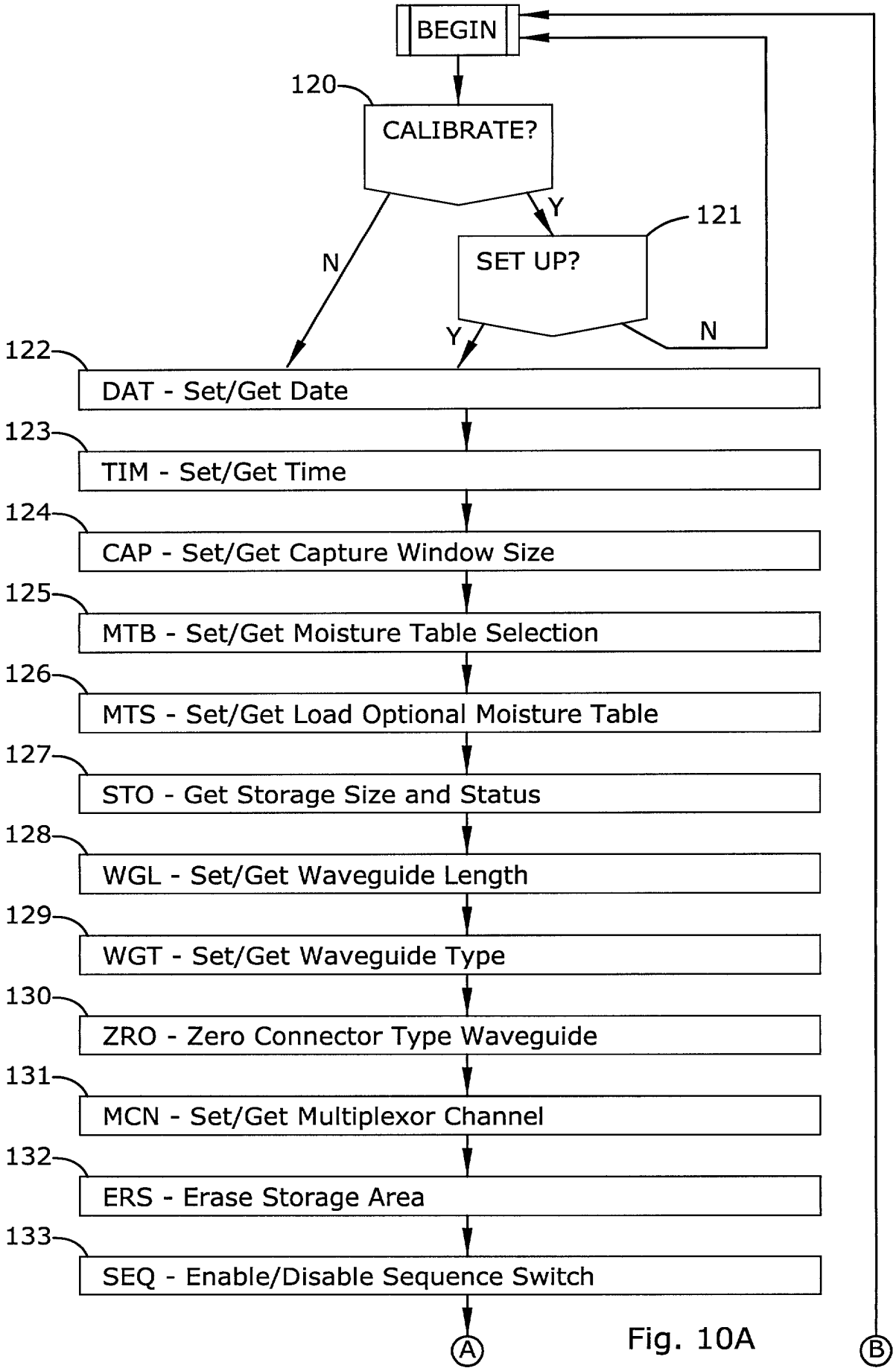


Fig. 10A

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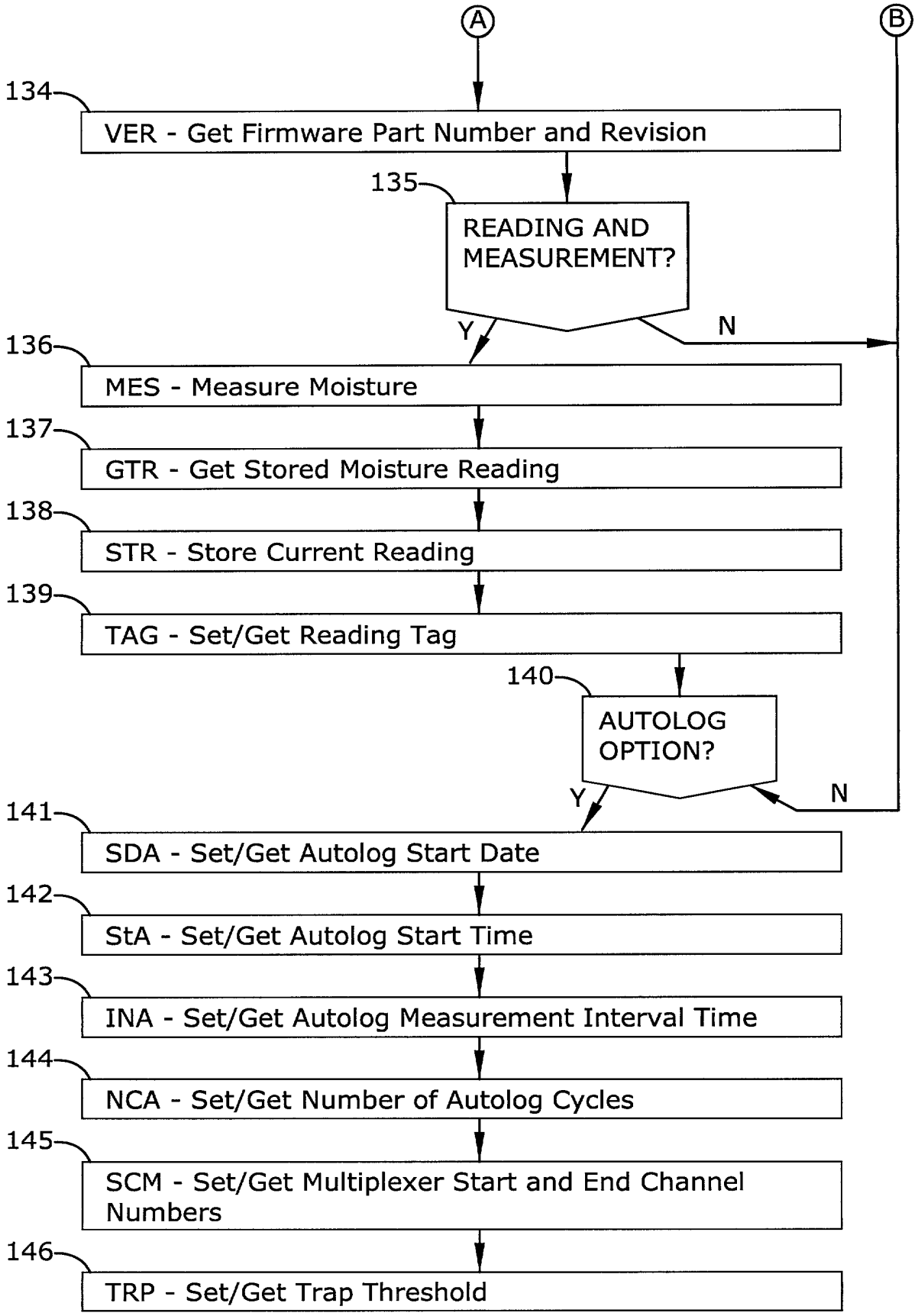
A
B
134
VER - Get Firmware Part Number and Revision
135
READING AND MEASUREMENT?
Y
N
136
MES - Measure Moisture
137
GTR - Get Stored Moisture Reading
138
STR - Store Current Reading
139
TAG - Set/Get Reading Tag
140
AUTOLOG OPTION?
Y
N
141
SDA - Set/Get Autolog Start Date
142
StA - Set/Get Autolog Start Time
143
INA - Set/Get Autolog Measurement Interval Time
144
NCA - Set/Get Number of Autolog Cycles
145
SCM - Set/Get Multiplexer Start and End Channel Numbers
146
TRP - Set/Get Trap Threshold

Fig. 10B

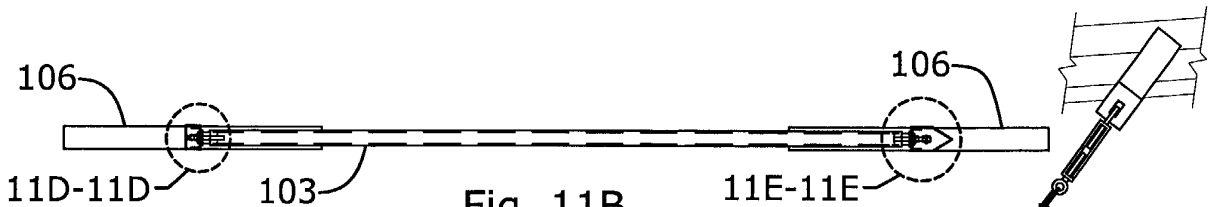

Fig. 11B

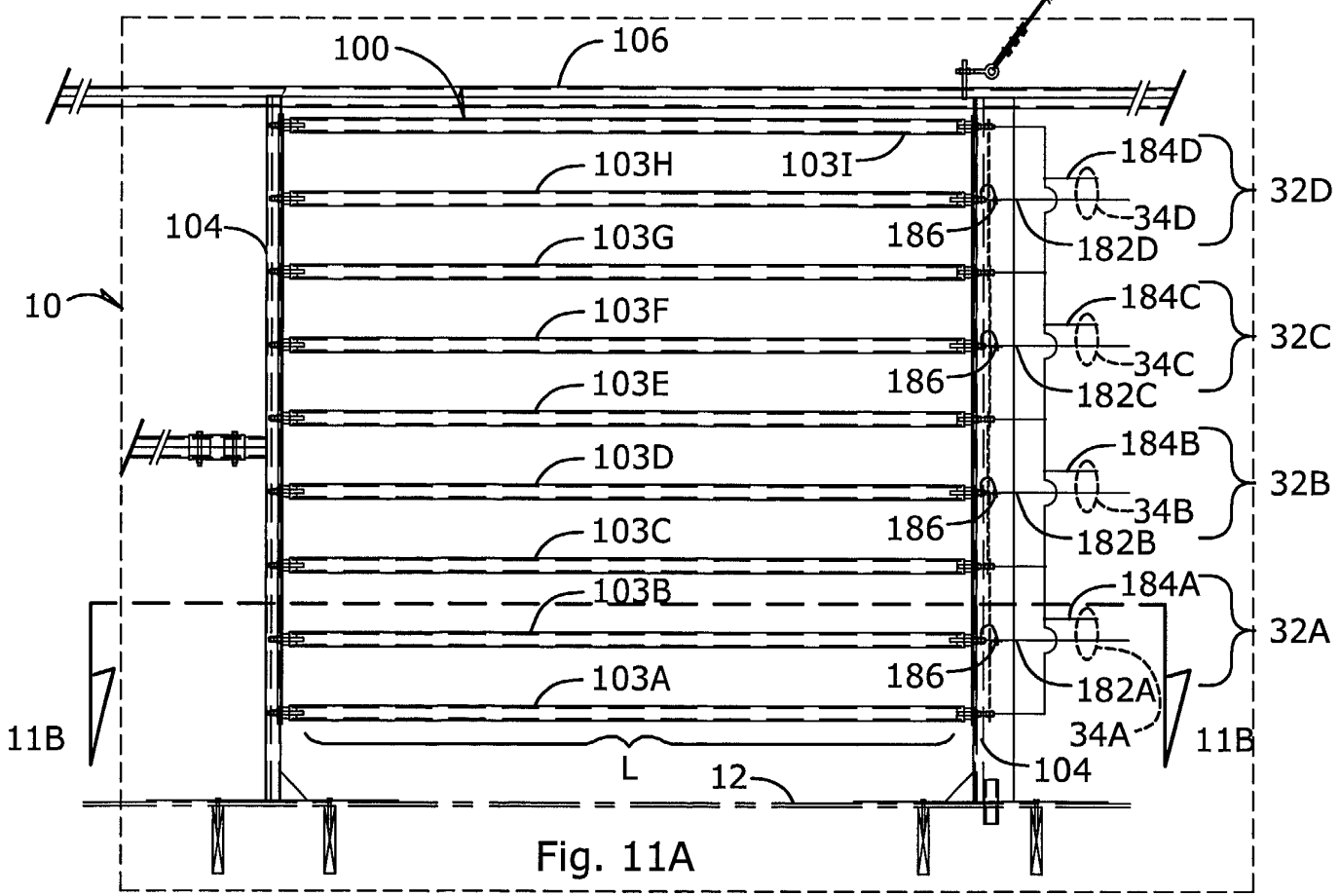

Fig. 11A

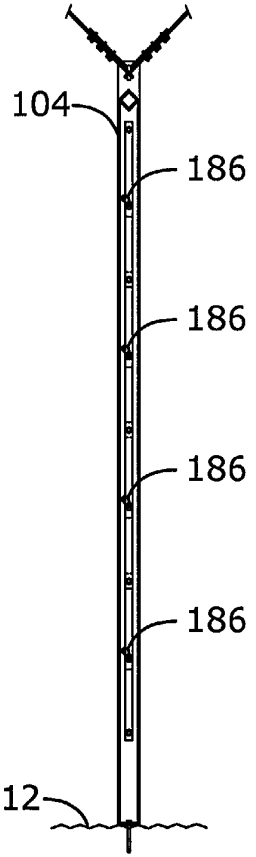

Fig. 11C

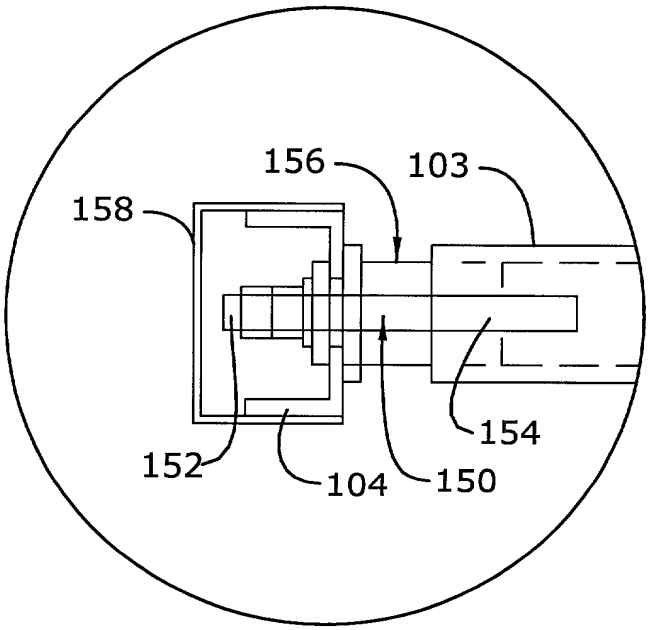

Fig. 11D

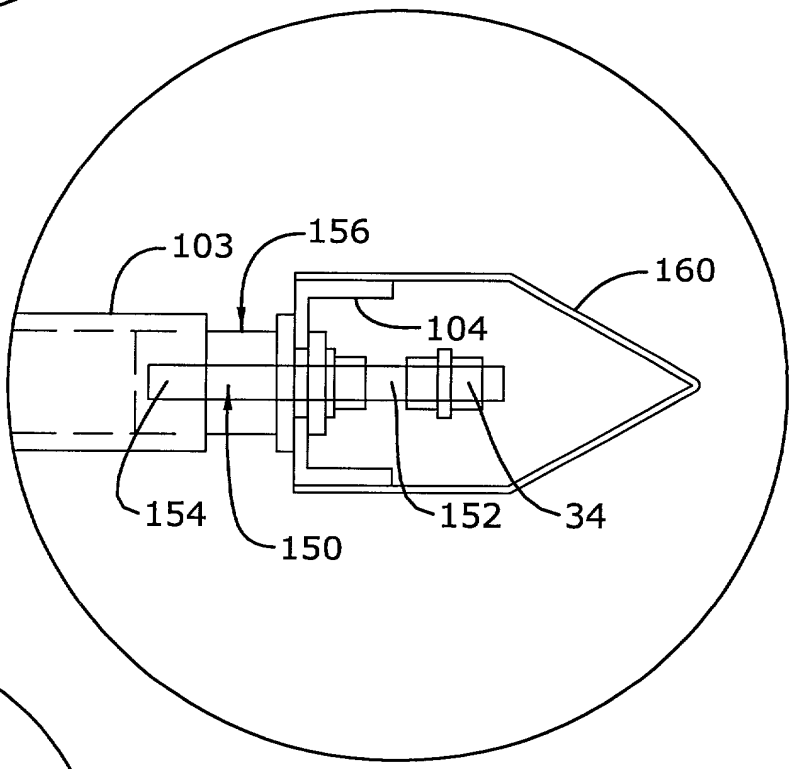

Fig. 11E

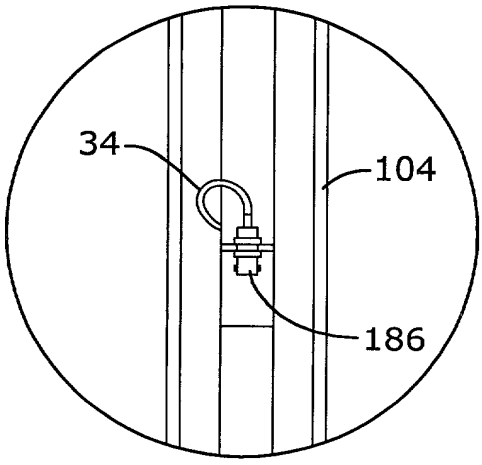

Fig. 11F

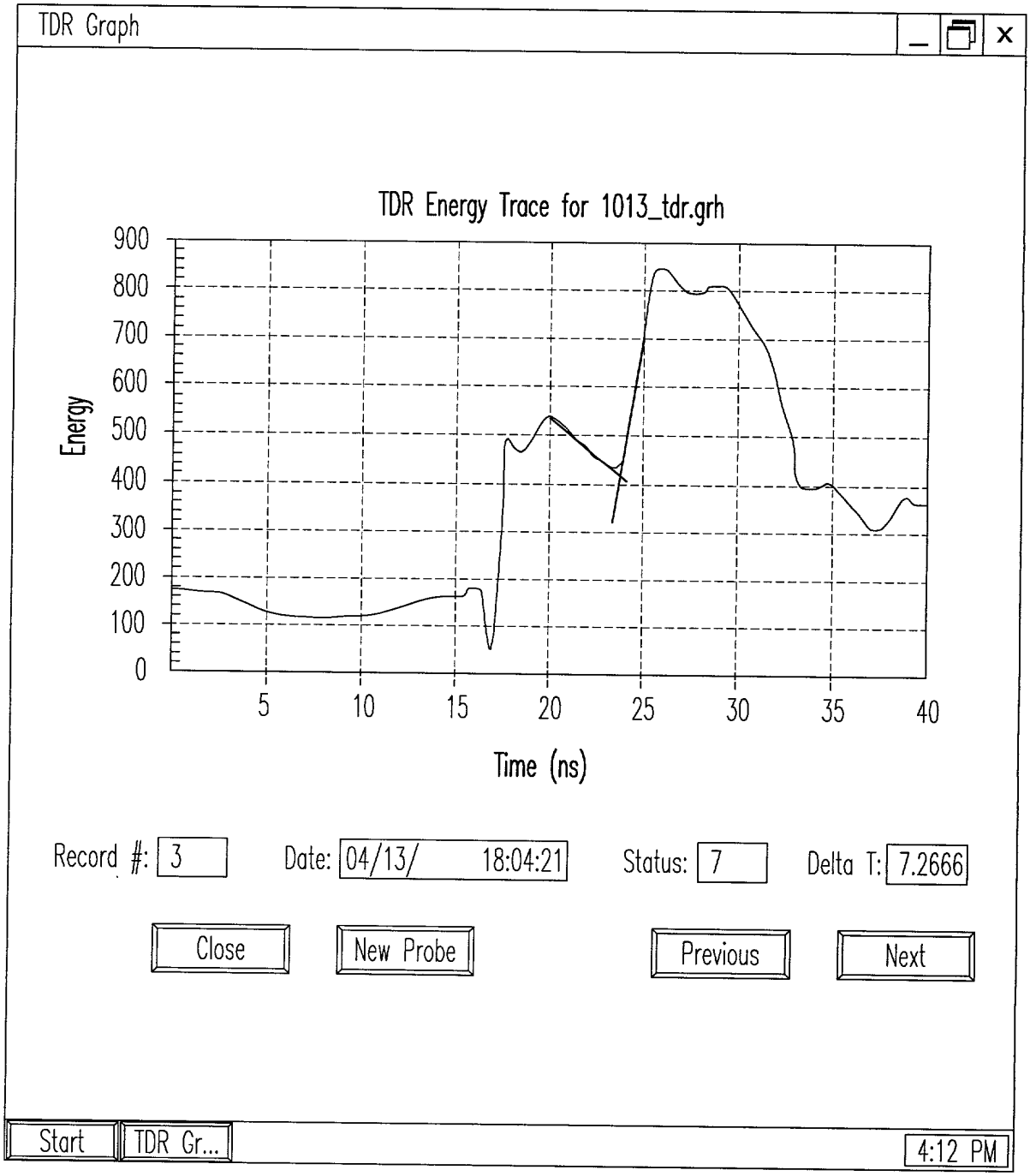
TDR Graph
TDR Energy Trace for 1013_tdr.grh
Energy
900
800
700
600
500
400
300
200
100
0
5
10
15
20
25
30
35
40
Time (ns)
Record #: 3
Date: 04/13/ 18:04:21
Status: 7
Delta T: 7.2666
Close
New Probe
Previous
Next
Start
TDR Gr...
4:12 PM

Fig.12